Center Independent Research & Development: GSFC IRAD

Generic Launch Window Analyzer SW2M - Applicability to Rideshare Payloads (SW2M-R)

Completed Technology Project (2017 - 2018)

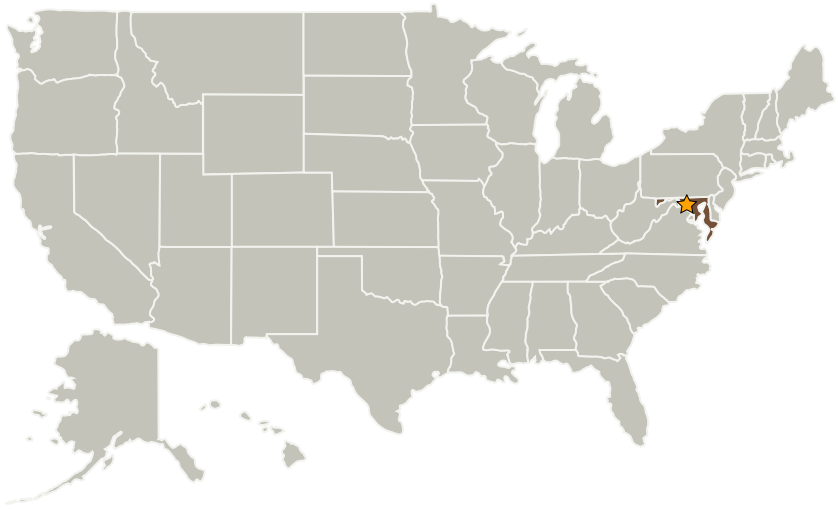
Project Introduction

The aim of this IRAD is to build upon the generic launch window analyzer that has been developed under previous IRADs so as to allow it to be applied to rideshare missions, where a secondary spacecraft makes use of the excess performance capability of current launch vehicles. One example of this excess performance is afforded by the launch of Landsat-8 on an Atlas V: in order to dispose of the Centaur stage after launch, it was not deorbited, but rather injected into a heliocentric escape trajectory.

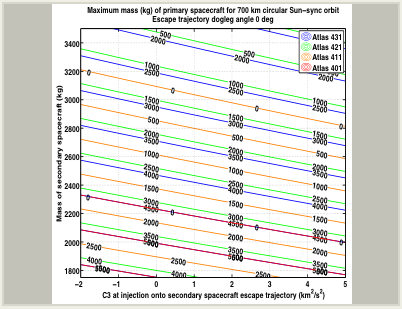
Anticipated Benefits

Rideshare methods have the potential to open up extensive new flight opportunities at modest launch costs: this is of great importance for new business not only for GSFC, but also for NASA as a whole. In addition, other government agencies and commercial launch providers would benefit from the ability to exploit fully the more economical launches that are achievable using rideshare.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
★Goddard Space Flight Center(GSFC)	Lead Organization	NASA Center	Greenbelt, Maryland



Rideshare performance, Sun-synchronous primary/escape trajectory secondary

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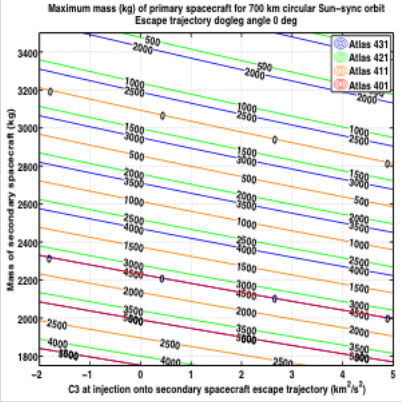
Primary U.S. Work Locations

Maryland

Images



Rideshare performance for primary and secondary spacecraft to different orbits
Rideshare performance, Sun-synchronous primary/escape trajectory secondary
(https://techport.nasa.gov/image/28499)

Organizational Responsibility

Responsible Mission Directorate:

Mission Support Directorate (MSD)

Lead Center / Facility:

Goddard Space Flight Center (GSFC)

Responsible Program:

Center Independent Research & Development: GSFC IRAD

Project Management

Program Manager:

Peter M Hughes

Project Managers:

Jason W Mitchell
Timothy D Beach

Principal Investigator:

Trevor W Williams

Co-Investigator:

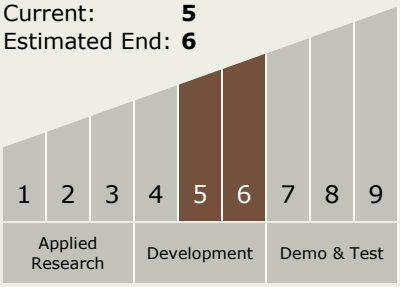
Wayne H Yu

Generic Launch Window Analyzer SW2M - Applicability to Rideshare Payloads (SW2M-R)

Completed Technology Project (2017 - 2018)

Technology Maturity (TRL)

Start: **5**
Current: **5**
Estimated End: **6**



Technology Areas

Primary:

- TX14 Thermal Management Systems
  - TX14.1 Cryogenic Systems
    - TX14.1.2 Launch Vehicle Propellant

Target Destinations

Mars, Earth, Others Inside the Solar System

Supported Mission Type

Projected Mission (Pull)